

ABSTRACT OF THE DISCLOSURE

One aspect of the invention includes an auxiliary magnet ring positioned outside of the chamber wall of a plasma sputter reactor and being disposed at least partially radially outwardly of an RF coil used to inductively generate a plasma, particularly for sputter etching the substrate being sputter deposited. Thereby, a magnetic barrier prevents the plasma from leaking outwardly to the coil and improves the uniformity of sputter etching. The magnetic field also acts as a magnetron when the coil, when made of the same material as the primary target, is being used as a secondary target. Another aspect of the invention includes a one-piece inner shield extending from the target to the pedestal with a smooth inner surface and supported by an annular flange in a middle portion of the shield. The shield may be used to support the RF coil.